

A Lightweight Compact Multi-Spectral Imager Using Novel Computer-Generated Micro-Optics and Spectral-Extraction Algorithms

Completed Technology Project (2013 - 2018)



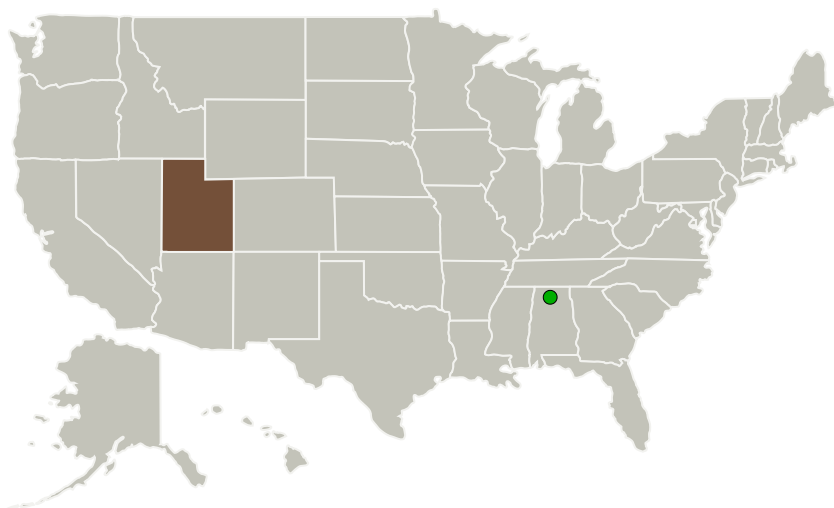
Project Introduction

The objective of this NASA Early-stage research proposal is to demonstrate an ultra-compact, lightweight broadband hyper- and multi-spectral imaging system that is capable of (1) detecting near-Earth objects (NEOs), (2) determining the size of NEOs, (3) determining the rotational characteristics of NEOs and (4) characterizing the material composition and thereby, determining the mass of NEOs. We achieve these goals by utilizing a novel broadband diffractive-optic to disperse incident light, collecting the dispersed image, and then by using new algorithms to reconstruct the incident unknown spectrum.

Anticipated Benefits

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Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
University of Utah	Lead Organization	Academia	Salt Lake City, Utah
● Marshall Space Flight Center (MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama

Primary U.S. Work Locations

Utah

Project Website:

<https://www.nasa.gov/strg#.VQb6T0jJzyE>

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

University of Utah

Responsible Program:

Space Technology Research Grants

Project Management

Program Director:

Claudia M Meyer

Program Manager:

Hung D Nguyen

Principal Investigator:

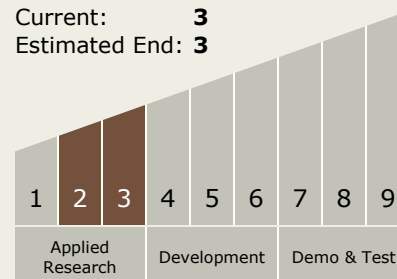
Rajesh Menon

Technology Maturity (TRL)

Start: 2

Current: 3

Estimated End: 3



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Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
 - └ TX12.1 Materials
 - └ TX12.1.7 Special Materials

Target Destinations

Earth, Others Inside the Solar System